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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,962	08/29/2006	Frank Arndt	4001-1227	5638
<div>466 7590 08/13/2010</div> <div>YOUNG & THOMPSON 209 Madison Street Suite 500 Alexandria, VA 22314</div>				
<div>EXAMINER</div> <div>ROSENAU, DEREK JOHN</div>				
<div>ART UNIT PAPER NUMBER</div> <div>2837</div>				
<div>NOTIFICATION DATE DELIVERY MODE</div> <div>08/13/2010 ELECTRONIC</div>				

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

Office Action Summary

Application No.

10/590,962

Applicant(s)

ARNDT ET AL.

Examiner

Derek J. Rosenau

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5 and 6 is/are rejected.
- 7) ☒ Claim(s) 4 and 7-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

In view of the Appeal Brief filed on 15 June 2010, PROSECUTION IS HEREBY REOPENED. New grounds of rejections are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Walter Benson/

Supervisory Patent Examiner, Art Unit 2837

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kornbluh et al. (US 20060192465).
3. With respect to claim 1, Kornbluh et al. discloses a cladding (Figs 2G-2J) comprising: an elastic boundary layer (items 112 and 131) which forms the surface of the cladding (Figs 2H and 2J), and an actuator (items 112 and 131, Paragraph 61) in the form of a membrane actuator which forms the cladding for the deformation of the boundary layer (Figs 2G-2J, and Paragraph 61), wherein the cladding bears on a substrate (items 114 and 136) by means of a bearing area which matches the surface area of the cladding in terms of magnitude and bears fully on the substrate (Figs 2H and 2J), with only subregions of the bearing area being fixed to the substrate (Figs 2G and 2I, the membranes are attached only at a single end with the opposite ends of the membranes being deformable).

In the embodiment of figures 2G-2J, Kornbluh et al. does not disclose explicitly that the actuator is a polymer actuator; however, Kornbluh et al. recognizes the interchangeability of the electrostatic actuator shown in figures 2G-2J and electroactive polymer actuators (Paragraph 61); therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to replace the electrostatic actuation shown in figures 2G-2J with electroactive polymer actuators as Kornbluh recognizes their interchangeability.

4. With respect to claim 3, Kornbluh et al. discloses the cladding as claimed in claim 1, wherein the cladding is fixed to the substrate at regular intervals in a punctiform manner (Figs 2G and 2I, the attachment points of the membranes 112

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and 131 on the substrates 114 and 136 are at regular intervals in a punctiform manner).

5. With respect to claim 5, Kornbluh et al. discloses the cladding as claimed in claim 1, wherein said cladding is composed of individual lamellae (items 112 and 131) which are each fixed to the substrate by means of one end (Figs 2G and 2I), with the lamellae each being polymer actuators (Paragraph 61) in the form of bending actuators (Figs 2H and 2J).

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kornbluh et al. in view of Pei et al. (US 20060113880).

7. With respect to claim 6, Kornbluh et al. discloses a cladding (Figs 2G-2J) comprising: an elastic boundary layer (items 112 and 131) which forms the surface of the cladding (Figs 2H and 2J), and an actuator (items 112 and 131, Paragraph 61) in the form of a membrane actuator which forms the cladding for the deformation of the boundary layer (Figs 2G-2J, and Paragraph 61), wherein the cladding bears on a substrate (items 114 and 136) by means of a bearing area which matches the surface area of the cladding in terms of magnitude and bears fully on the substrate (Figs 2H and 2J), with the cladding area being firmly connected to the substrate by means of the entire bearing area (Figs 2H and 2J).

In the embodiment of figures 2G-2J, Kornbluh et al. does not disclose explicitly that the actuator is a polymer actuator; however, Kornbluh et al. recognizes the interchangeability of the electrostatic actuator shown in figures 2G-2J and electroactive polymer actuators (Paragraph 61); therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to

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replace the electrostatic actuation shown in figures 2G-2J with electroactive polymer actuators as Kornbluh recognizes their interchangeability. While Kornbluh et al. does not disclose explicitly that the electroactive polymer is formed with an electrode layer for the polymer actuator, the polymer actuator can not function without an electrode for the polymer actuator; therefore, an electrode must be present for the polymer actuator.

Kornbluh et al. does not disclose that the electrode layer extends only over a subregion of the polymer actuator.

Pei et al. teaches an electroactive polymer membrane actuator in which the electrode layer extends only over a subregion of the polymer actuator (Figs 2K and 2L, electrodes 284 and 285 cover only subregions of the polymer actuator 281).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to form the electrodes of the polymer actuator of Kornbluh et al. to cover only a subregion of the polymer actuator as Kornbluh et al. recognizes that the shapes and designs of the electrodes of a polymer actuator allow for the desired actuation to be achieved (Paragraph 126 of Kornbluh et al.).

Allowable Subject Matter

8. Claims 4 and 7-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter. The prior art does not disclose or suggest "wherein the cladding

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is provided with through-holes" in combination with the remaining elements of claim 4. The prior art does not disclose or suggest "wherein the electrode layer forms the webs of a honeycomb-like structure on the polymer layer" in combination with the remaining elements of claim 7. The prior art does not disclose or suggest "wherein the substrate forms an electrode for a polymer layer of the polymer actuator" in combination with the remaining elements of claim 8. The prior art does not disclose or suggest "wherein the boundary layer is in the form of an auxiliary layer on the polymer actuator" in combination with the remaining elements of claim 9.

Response to Arguments

10. Applicant's arguments with respect to claims 1 and 3-10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek J. Rosenau whose telephone number is (571)272-8932. The examiner can normally be reached on Monday thru Thursday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Benson can be reached on (571) 272-2227. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Derek J Rosenau/
Examiner, Art Unit 2837

/Walter Benson/
Supervisory Patent Examiner, Art Unit 2837